

THE LARVA OF *PROATTA*
(HYMENOPTERA: FORMICIDAE)

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When Forel established (1912) the genus *Proatta* he placed it in the tribe Attini, but later (1917) he removed it to a new tribe Proattini. Wheeler (1922) kept it there, but Emery in the *Genera Insectorum* (1922) placed it alone in the subtribe Proattini of the tribe Attini. Weber (1958): "While it is true that *Proatta butteli* is strikingly like an attine, this is taken here to be an example of convergence in worker morphology and not necessarily an indication of phylogenetic relationships. The spinosity is especially like that of *Mycocepurus*,...There is no evidence that *Proatta* is a fungus-grower and it is not considered here to be a member of the Attini."

For years we have yearned for larvae of *Proatta* in the hope that they might solve the problem. Hence we were very happy when Mr. M. W. Moffett generously sent us a supply—so happy, in fact, that we processed them immediately.

Genus *Proatta* Forel

Profile attoid, but only slightly curved. Somites indistinct. Body hairs sparse, generally distributed. Antennae minute; slightly above midlength of cranium. Head hairs sparse, generally distributed. Mouth parts small. Mandible amblyoponoid, feebly sclerotized.

Proatta butteli Forel

Figure 1

Length (through spiracles) 2–2.6 mm. Profile attoid. Spiracles small, decreasing slightly posteriorly. Integument with rather long

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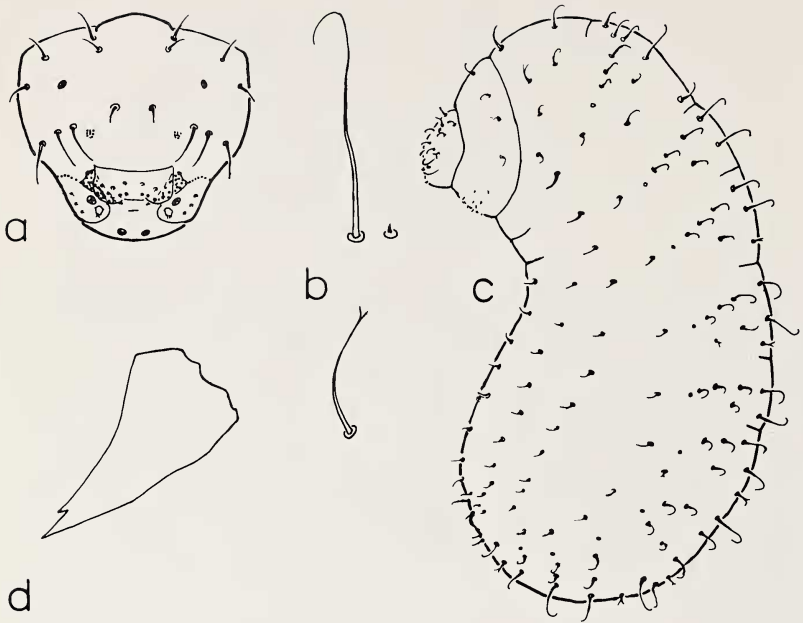


Figure 1. *Proatta butelli* larva. a, Head in anterior view, $\times 122$; b, 3 types of body hairs, $\times 400$; c, larva in side view, $\times 42$; d, left mandible in anterior view, $\times 640$.

rows of spinules. Body hairs sparse; generally distributed. Of 3 types: (1) 0.025–0.1 mm long, unbranched, smooth, slender, with tip more or less curved; (2) about 0.025 mm long, few, with bifid tip; (3) about 0.006 mm long, unbranched, smooth, few, on venter of thorax. Cranium subheptagonal, about $1\frac{1}{2}$ times broader than long. Antennae just above midlength of cranium; minute; with 3 sensilla each. Head hairs few; 0.013–0.056 mm long, unbranched, smooth, slightly curved. Mouth parts small. Labrum trilobed; anterior surface of each lateral lobe with 2–3 sensilla near ventral border; middle lobe with a cluster of 3–4 sensilla near each ventrolateral corner. Mandible amblyoponoid; moderately sclerotized; moderately stout; apex a short slender tooth; a small subapical medial tooth. Maxilla adnate; subovoidal in anterior view; palp a small skewed peg with 5 (1 apical, 3 subapical and 1 basal) sensilla; galea a slender frustum with 2 apical sensilla. Labial palp a slight elevation with 5 sensilla; an isolated sensillum between each palp and the opening of the sericteries; the latter a short transverse slit. (Material studied:

Table 1. Comparison of *Proatta*, *Myrmicocrypta* and higher attines.

Character	<i>Proatta</i>	<i>Myrmicocrypta</i>	Higher attines
Profile	attoid (but slightly curved)	attoid (but slightly curved)	attoid (strongly curved)
Somites	indistinct	indistinct	indistinct
Spiracle line	with a posterior curve	with a posterior curve	J-shaped
Body hairs	sparse, short generally distributed	short and restricted	short and restricted
Cranium	genae not lobose	genae not lobose	genae lobose
Head hairs	few, generally distributed	few, below level of antennae	few to numerous, generally distributed
Mouth parts	small	small	small
Mandibles	amblyoponoid; feebly sclerotized; no spinules	amblyoponoid; feebly sclerotized; coarse spinules on basal 2/3	attoid; feebly sclerotized; coarsely spinulose
Maxillae	short, wide and adnate	short, wide and free	long, narrow and adnate

numerous larvae from Botanical Gardens, Singapore, courtesy of M. W. Moffett.)

The solution to the problem of relationship can be best provided in a table (Table 1) comparing simultaneously the larvae of *Proatta*, *Myrmicocrypta* [which Wheeler regarded (1910:329) as the most primitive of the fungus-growing ants] and the most specialized (*Cyphomyrmex*, *Trachymyrmex*, *Mycetosoritis*, *Acromyrmex* and *Atta*). For a full understanding of the table one should refer to our 1948 and 1976 papers.

So what is the answer? We conclude that the larva of *Proatta* is definitely attine. We have a prejudice against attaching a small monotypic genus found locally in the Oriental Realm to a large wide-spread tribe in the Neotropical Realm; hence we had hoped that the larva would be either strongly attine or strongly non-attine. It is neither, but it is as good an attine as *Myrmicocrypta*. It lacks the coarse spinules on the mandibles, which is an attine character, but so does *Apterostigma*, which is otherwise like the higher attines.

The weightiest evidence is said to be that *Proatta* is not known to be a fungus-grower; but is it really necessary that the ancestral attine already have that habit?

LITERATURE CITED

- EMERY, C.
1922. Fam. Formicidae, Subfam. Myrmicinae. Genera Insectorum Fasc. 174. 307 p.
- FOREL, A.
1912. Descriptions provisoires de genres, sous-genres et espèces de Formicides des Indes orientales. Rev. Suisse Zool. **20**: 761-774.
1917. Cadre synoptique actuel de la faune universelle des fourmis. Bull. Soc. Vaud. Sci. Nat. **51**: 230-253.
- WEBER, N. A.
1958. Nomenclatural notes on *Proatta* and *Atta*. Ent. News **69**: 1-13.
- WHEELER, G. C.
1948. The larvae of the fungus-growing ants. Amer. Midland Natur. **40**: 664-689.
- WHEELER, G. C., AND JEANETTE WHEELER.
1976. Ant larvae: review and synthesis. Ent. Soc. Washington Memoir No. 7, 108 p.
- WHEELER, W. M.
1910. Ants. Columbia Univ. Press, New York. 663 p.
1922. The ants collected by the American Museum Congo Expedition. Bull. Amer. Mus. Nat. Hist. **45**: 39-269, 22 pl.